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A framework for developing a knowledge-based decision support system for management of variation orders for institutional buildings

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This study describes the framework for developing a knowledge-based decision support system (KBDSS) for making more informed decisions for managing variation orders in institutional buildings. The KBDSS framework consists of two main components, i.e., a knowledge base and a decision support shell. The database will be developed through collecting data from source documents of 80 institutional projects, questionnaire survey, literature review and in-depth interview sessions with the professionals who were involved in these institutional projects. The knowledge base will be developed through initial sieving and organization of data from the database. The decision support shell would provide decision support through a structured process consisting of building the hierarchy between the main criteria and the suggested controls, rating the controls, and analyzing the controls for selection through multiple analytical techniques. The KBDSS would be capable of displaying variations and their relevant details, a variety of filtered knowledge, and various analyses of available knowledge. This would eventually lead the decision maker to the suggested controls for variations and assist in selecting the most appropriate controls. The KBDSS would assist project managers by providing accurate and timely information for decision-making, and a user-friendly system for analyzing and selecting the controls for variation orders for institutional buildings. The study would assist building professionals in developing an effective variation management system. The system would be helpful for them to take proactive measures for reducing variation orders. The findings from this study would also be valuable for all building professionals in general.

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